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TC/A.U.	:	N/A
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Customer No.	:	52706

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PRELIMINARY AMENDMENT

Dear Sir or Madam:

This is a preliminary amendment being submitted together with the PCT National Stage Application, as referenced above.

Marked-up version of abstract amendment begins on page 2 of this paper.

Marked-up version of claim amendment begins on page 3 of this paper.

Remarks begin on page 5 of this paper.

Amendment to Abstract

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The present invention relates to an apparatus for closing the door slowly and automatically, and it is commonly used in the name of door closer in the market. The conventional door closer has a complicated structure and causes much energy loss because the compressing force of the compression spring in the body is transferred through a gear. However, the present invention can directly get the door closed by the piston rod without passing through a gear, so that the energy loss is little, and a small amount of air is contained in the hydraulic oil in order for the piston and the piston rod to be moved to the left and right hand side. The closing speed of the door can be adjustable by turning a speed adjustment bolt. The installed conventional door closer must be disassembled and reassembled for a force adjustment to adjust the opening and closing force of the door, and it was very difficult to install the conventional door closer due to the adjustment of mounting position to the door and the doorframe and the length of the link. However, the present invention can be simply adjusted for the force adjustment by turning the force adjustment nut when it is installed, and for the installation, it is very easy to install the present invention since the function of the invention works with a force adjustment by turning the force adjustment nut when the invention is fixed to the door and doorframe. The invention can be applied to all kinds of small or big sized opening and closing doors including a plastic door, an aluminum door, a wood door, and a steel door to close slowly and automatically.

Claim Amendment
(Base claims are Amendment under PCT Article 34)

Claim 1. (original) A door closer which is fabricated in a hydraulic or air cylinder shape in its body,

wherein a subsidiary plate 9a with a subsidiary pin 9b is assembled to a door mounting device 9 installed at a door 10, and a force adjustment nut 7, which is rotatable to right or left side, is assembled to the subsidiary plate 9a so that it can change the position of a piston rod 3 to the door 10 or to a doorframe 11;

wherein a cylinder 1 is assembled to a doorframe mounting device 8 installed at the doorframe 11, a surface of the cylinder 1 being provided with hemi-cylindrical shaped protrusions, in which an oil-hole is formed and a speed adjustment bolt is assembled at end thereof, extending linearly in the longitudinal direction, a piston 2, and a spring 5 is mounted in the cylinder 1 and hydraulic oil containing a little amounts of air is filled in the cylinder 1, the piston rod 3 is extending from an inner side to an outer side of the cylinder 1, one end of the piston rod 3 being provided with the piston 2 and the other end thereof being provided with male screw 3a in which minor diameter of an external thread is greater than a diameter of the piston rod 3; and

wherein the door mounting device 9 including the force adjustment nut 7, subsidiary plate 9a and subsidiary pin 9b, and the doorframe mounting device 8 including the cylinder 1, the piston rod 3 and the male screw 3a, can be assembled and separated from each other by the force adjustment nut 7 provided at the door mounting device 9, and the male screw 3a provided at the one end of the piston rod 3.

Claim 2. (original) The door closer of Claim 1, wherein an additional supporter 8a of a rectangular shape can be, if needed, provided at lower surface of the doorframe mounting device 8, a longitudinal and transverse length thereof being identical with those of the lower surface of the doorframe mounting device 8, and holes corresponding to screw holes formed at lower surface of the doorframe mounting device 8 is formed at the additional supporter 8a so as to fix the doorframe mounting device 8 to the doorframe 11, with forming an additional central hole in the supporter 8a for assembling with the doorframe mounting device 8.

Claim 3. (original) The door closer of Claim 2, wherein the additional supporter 8a is made of materials selected from plastic group.

Claim 4. (currently amended) The door closer of Claim 1 ~~or Claim 2~~, wherein the piston 2 is provided with a hole 2a and is connected to one end of the piston rod 3, an catch rod 2a' being formed at the hole 2a and a ball 2b is received therein, and the male screw 3a is formed or attached to other end of the piston rod 3 so that the piston rod 3 can be moved in the force adjustment nut 7, the minor diameter of an external thread being greater than the diameter of the piston rod 3.

Claim 5. (currently amended) The door closer of Claim 1 ~~or Claim 2~~, wherein the force adjustment nut 7 is exposed to outside to make it easy to mount and control force, an female screw being formed at inside of the force adjustment nut 7 so that the piston rod 3 can be moved in the force adjustment nut 7, the minor diameter of the internal thread being greater than the diameter of the piston rod 3, and in addition, the force adjustment nut 7 has a cylindrical shape with a big central through-hole extending therethrough, one end of it being blocked by a round plate with a small central through-hole.

Remarks

Applicant has amended Abstract to meet 150-word requirement by deleting some of the phrases and paragraphs. The abstract amendment is incorporated to the *Substitute Specification* attached to this submission.

The claim amendment is directed to eliminate multiple dependent claims in the Amendment filed under PCT Article 34. Accordingly, the applicant has amended respective multiple dependent claims 4 and 5 to single dependent claims 4 and 5, accordingly. The claim amendment is incorporated in the *Substitute Specification* attached to this submission. No multiple dependent claims exist after this amendment.

Applicant has added 'PRIOR ART' labels for FIGS. 1-3 to comply with the drawing description in the specification. The 'PRIOR ART' labeled drawings are attached in the *Substitute Specification* attached to this application submission.

Specification, drawing and abstract remain unchanged.

No new matters are included in this amendment.

Applicant now respectively requests a timely examination of the PCT national stage application in consideration of this preliminary amendment.

Respectively submitted,

IPLA P.A.

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